6 Congestion Management Plan

As a Transportation Management Area (TMA), the High Point Metropolitan Planning Organization must have a congestion management system (CMS): a systematic process for defining acceptable levels of congestion; developing performance measures; identifying ways to manage congestion; prioritizing funding and assessing the effectiveness of those actions.

6.1 Travel Time Index

Each year, the Texas Transportation Institute releases a national mobility report. Although High Point is not listed separately, the data for, Greensboro and Winston-Salem, gives some insight into congestion in High Point. The congestion index is the ratio of the peak period travel time to congested travel time along major roadways in the region. According to Figure 6-1 travel during the peak period takes slightly longer than in nonpeak times. The figure also shows that there has not been much change since 2007 (Tim Lomax, David Schrank & Bill Eisele, 2011).

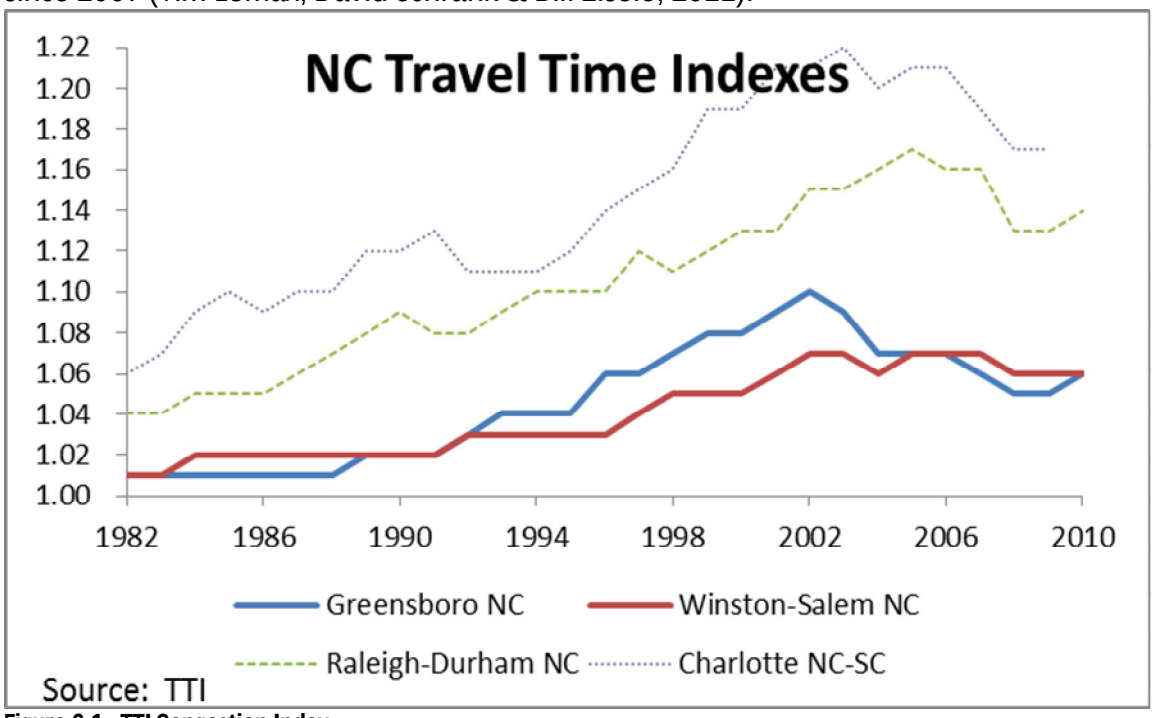

Figure 6-1: TTI Congestion Index

6.2 Congestion Based on Traffic Counts

The High Point MPO uses traffic counts from NCDOT's to estimate congestion and to identify congested routes. This section of the report discusses the assumptions and methodology used to estimate the volume to capacity ratio in this report.

Capacities come from the Triad Regional Model. These capacities are link capacities and assume freeflow speed, signals per mile, and vehicle mix. To compensate for this limitation the analysis assumes that ten percent of traffic occurs in the peak hour and that the directional split is 60:40.

The v/c ratio was estimated using the following formula:

$$\frac{v}{c} = \frac{Peak\ Percent * Split * AADT}{Capacity}$$

As stated above, a 10 percent Peak Percent and 60% directional split are assumed AADT is NCDOT's reported AADT at that location and Capacity is the hourly capacity at that location.

For example, assuming a 4 lane arterial with a traffic volume of 25,000 vehicles per day gives the following calculations:

1. Estimate the Hourly Directional Volume:
   $$Directional\ Volume = 10\% X\ 60\%\ X\ 25{,}000 = 1{,}500\ vehicles/hour$$

2. Estimate the Hourly Directional Capacity:
   $$Directional\ Capacity = 2\frac{lanes}{direction}\ X\ 1{,}600\frac{vehicles}{lane - hour}$$
   $$= 3{,}200\ vehicles/hour$$

3. Estimate the v/c:
   $$\frac{v}{c} = \frac{1{,}500\ vechiles/hour}{3{,}200\ vehicles/hour}$$
   $$\frac{v}{c} = 0.47$$

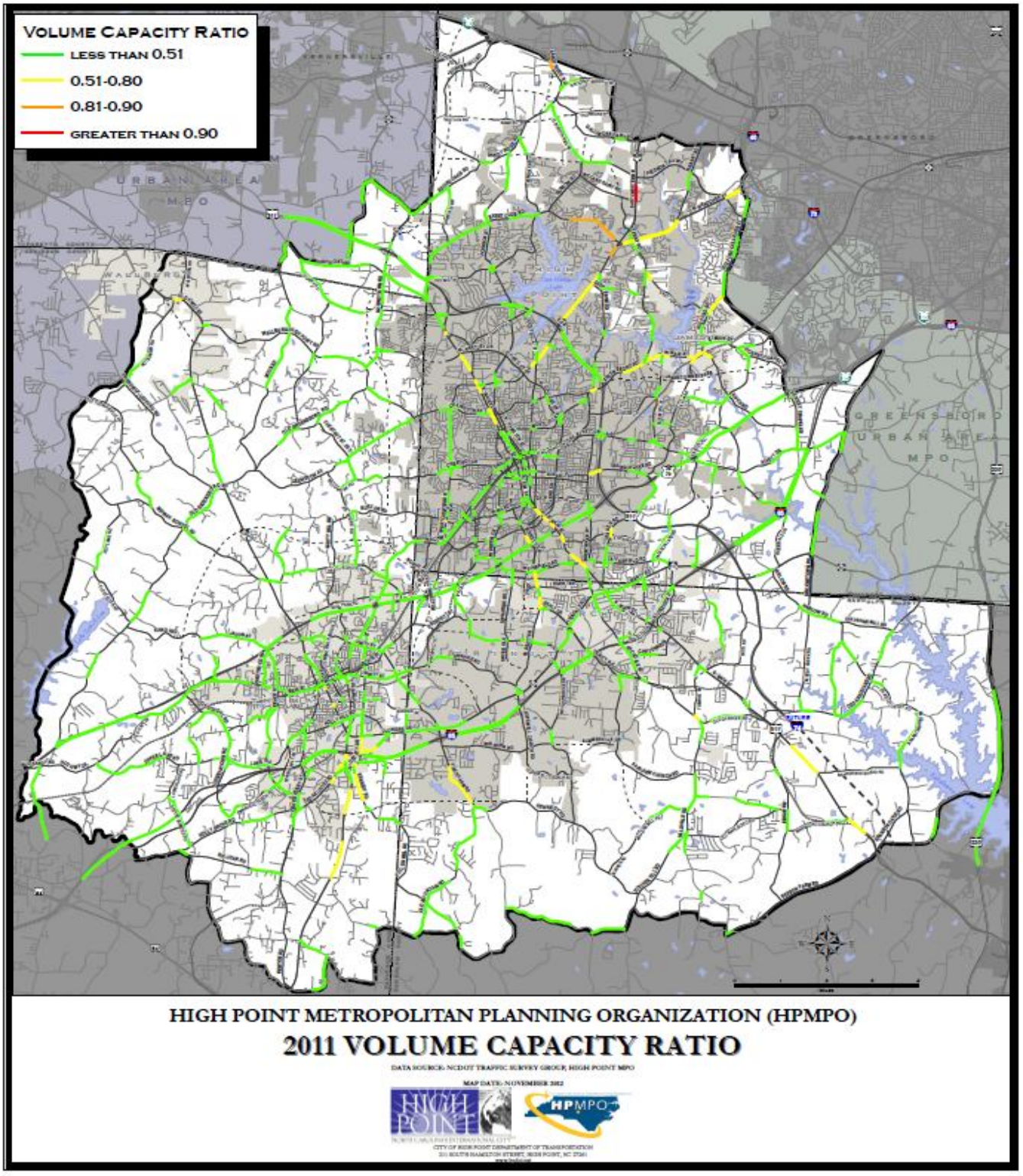

Figure 6-2: 2011 Volume: Capacity Map

6.3 Congested Corridors

VC Ratio	Color Code
None[1]	None
< 0.50	Green
0.51- 0.80	Yellow
0.81 – 0.90	Orange
0.91 >	Red

Typically the results of capacity analysis are presented using a letter grade scale ranging from A through F with A being the best and F being the worst. The MPO uses a simpler approach for assessing congestion and capacity. Using the 2011 AADTs from NCDOT and the hourly capacities from the Triad Regional Model staff estimated a volume to capacity (v/c) ratio for each link. Based on the v/c ratio roadways are then divided into five categories: no data, green for v/c ratios less than 0.5, yellow for capacity ratios between 0.51, and 0.80, orange for v/c ratios between 0.81 and 0.90 and red for v/c ratios greater than 0.90. Although not perfect, this system is good enough to provide a comparison and, in some cases, to encourage additional analysis.

There appear to be no widespread capacity deficiencies in the MPO area. The results of the capacity analysis are consistent with staff's expectations of congested locations. The table below discusses the areas of highest concern. Figure 6-2 shows a map of the information.

Location	Estimated v/c Ratio	Notes
NC 68 between Premier Drive and Willard Dairy Road	0.96	This segment jumped a category between 2009 and 2011. There are no improvements under consideration on this section of NC 68 at this time.
Skeet Club Road Between NC 68 and Barrow Road	0.87	This two-lane circumferential arterial serves newer residential neighborhoods in north High Point. *NCDOT's current Transportation Improvement Program anticipates widening this section of beginning in 2014(U-3615B)*.
Sandy Ridge Road Between I-40 and the NC Farmer's Market Entrance	0.87	In the 2007 congestion report this section showed a v/c ratio of 0.93. The City is managing an environmental planning document for Johnson St. and Sandy Ridge Road that will determine future improvements in this area (U-4758).
The interchange of NC 68 and US 311	n/a	There were no traffic counts on the interchange in 2009. Based on earlier

[1] No data. Either there is no count data or the link is not on the model and capacity is not available.

		work, the City and NCDOT are collaborating to improve this interchange. *NCDOT's current Transportation Improvement Program expects this improvement to start in 2016(U-5169)*.
NC 109 S. in Thomasville	0.82	This radial leading south from Thomasville towards Denton serves a mix of local commercial, commuting, and through traffic. NCDOT has recently completed FS 0509 as the first step in developing a solution to these problems. The feasibility study recommends connecting Julian Avenue and Unity Street to provide an alternative route for through traffic using NC 109.
High Point Signal System Upgrade	-	The existing signal system was finished in approximately 1997. The technology used in the system is nearing obsolescence, and while the system can be maintained as long as spare parts are available and software support continues there are good benefits associated with planning for an upgrade of the system at this point in its life cycle. A new signal system can make a considerable contribution to both safety and security of the transportation system.

There is some natural variability in traffic on roadways; with our congestion report now in its sixth round we have begun to get a sense of this variability. The roads listed in the table have shown small variations in congestion over the past several years.

6.4 Other Congestion Management Activities

This section discusses actions intended to relieve, or mitigate congestion in the MPO.

6.4.1 Congestion Management Activities for the International Home Furnishings Market

The semiannual International Home Furnishings Market[2] ("The Market") is a key economic event in the High Point Metropolitan Area. Semi-annually approximately 82,000 vendors and buyers come to High Point to participate in the International Home

[2] http://www.highpointmarket.org/

Furnishings Market. The 'Market' is a significant engine of economic activity for the furniture industry and for High Point. High Point's showroom district offers 12,000,000 square feet of showroom space dedicated to the furniture industry. Before the 'Market,' starts exhibitors must fill the showrooms with goods. During the 'Market,' sellers and buyers need easy access to showrooms. To meet these needs, the City works with The Market Authority, to provide transportation services to visitors and guests. Congestion management tasks associated with the 'Market' includes:

- A truck staging and parking system to improve freight access to the market district in the weeks immediately before the 'Market',
- Seasonal park and ride lots,
- Shuttle services to regional and international airports,
- "Go Anywhere Vans" providing service to all showroom facilities,
- Temporary variable message signs at intersections and interchanges leading into High Point,
- Designated taxicab, van, and bus loading zones at the Mendenhall transportation terminal,
- Special signal timing plans along radial routes leading to downtown,
- Active traffic management during the 'Market', and
- Leasing over-the-road coaches (buses) to provide shuttle service to and from parking lots 'Market'.

In addition the city Transportation Department participates with market Authority personnel, police, and emergency responders to plan and review transportation performance of transportation programs for the 'Market'.

6.4.2 Congestion Related Studies and Planning to Mitigate Congestion or Improve Safety

The MPO helps fund studies to provide guidance on congestion relief for facilities.

6.4.2.1 Jamestown Congestion Study

6.4.2.2 Davidson Community College Interchange Study

In 2011, the High Point MPO partnered with Davidson Community College, Davidson County, Lexington, NCDOT and Thomasville to improve access and mobility around the Davidson Community College (DCC) campus. DCC is the only college in Davidson County and has a student body of 16,000. Many of the students arrive from Lexington, to the southwest, and need to make a left turn across an un-signalized expressway to get onto campus. In addition, the college owns a large piece of property across US 29-70 from the existing campus that is slated for future expansion. The purpose of this study was to identify a solution to three problems: student access to the existing campus, access to the proposed campus, and preservation of development opportunities for the college. The recommendation of this study is a partial clover interchange that is now in the state

transportation improvement program as R-5604 (Kimley-Horn & Associates, Inc. & Michael Baker Engineering, Inc., 2011).

6.4.2.3 NC 62 Access Management Study

NC 62 runs in a southwest to northeast direction across the southern half of the High Point MPO. It parallels Interstate 85 until it crosses the interstate north of the Randolph County/Guilford County line then continues east across southern Guilford County. There is a diamond interchange at Interstate 85 and NC 62. NC 62 is a two lane facility which carried 12,000 vehicles per day in 2005. There is heavy development pressure in the general area of the Interstate 85/NC 62 interchange which will lead to additional traffic and an increased number of potential vehicle conflicts and congestion. The City of High Point, The City of Archdale and the High Point MPO expect additional development pressure as the US 311 Bypass/Interstate 74 nears completion. Consistent with the US-311 Interchange Study recommendations (Land Design Inc. & Neil Shaffer Inc., 2002) the MPO is working cooperatively with Archdale to develop an access management plan for NC 62 in the area of Interstate 85. The results of the access management plan will be included in later versions of the congestion management plan (Urban Resource Group, 2010).

6.4.2.4 Process Activities in Support of Congestion Relief

The MPO participates in several planning and data collection efforts to support congestion management, model development, or safety and security improvements. The list below is a partial list of these data analysis activities.

Accident Evaluation- One staff member analyzes and categorizes traffic accident data. This person's duties include developing lists of intersections with high accident histories and bringing those intersections to the attention of a corridor evaluation committee.

Corridor Congestion Management Project- the MPO is collecting congestion, accident, and reliability data on major corridors. The purpose of this study is to develop recommendations for improvements to these corridors and to develop baseline data (accident rates, level of service, and travel times) to develop objective measures of project performance.

Hazardous Material Route Inventory- Staff is working with the fire, police and planning departments to document and develop hazardous materials routes for High Point.

Works Cited

Kimley-Horn & Associates, Inc. & Michael Baker Engineering, Inc. (2011). *US 29-70 Corridor Study: Project Workbook.* High Point, NC: The High Point Metropolitan Planning Organization.

Land Design Inc. & Neil Shaffer Inc. (2002). *US 311 Bypass Interchange Study: High Point, Jamestown, and Archdale.* High Point, NC: City of High Point.

Tim Lomax, David Schrank & Bill Eisele. (2011, September). *2011 Annual Urban Mobility Report.* Retrieved May 2012, from Texas A&M Transportation Institute: http://mobility.tamu.edu/ums/

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